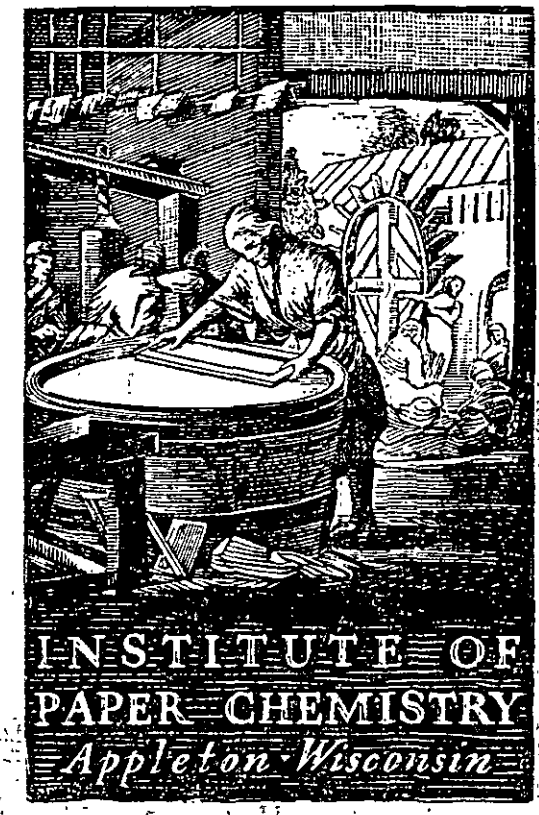


CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 135

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1958

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 135

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1958

TABLE OF CONTENTS

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

PART I: PRESENTATION AND DISCUSSION OF RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY

In conjunction with the F.K.I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the month of September, eighty-seven different sample lots of 42-lb. Fourdrinier kraft linerboard from sixteen different F.K.I. mills were processed at The Institute of Paper Chemistry. A tabulation of the number of samples classified according to mill may be seen in Table I.

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. In addition to a comparison of the mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. average is based on the results for the previous twelve months excluding the current period. Hence, in the case of the current report, it covers the period from September 1, 1957 to August 31, 1958. The F.K.I. indexes are obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

TABLE I

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL

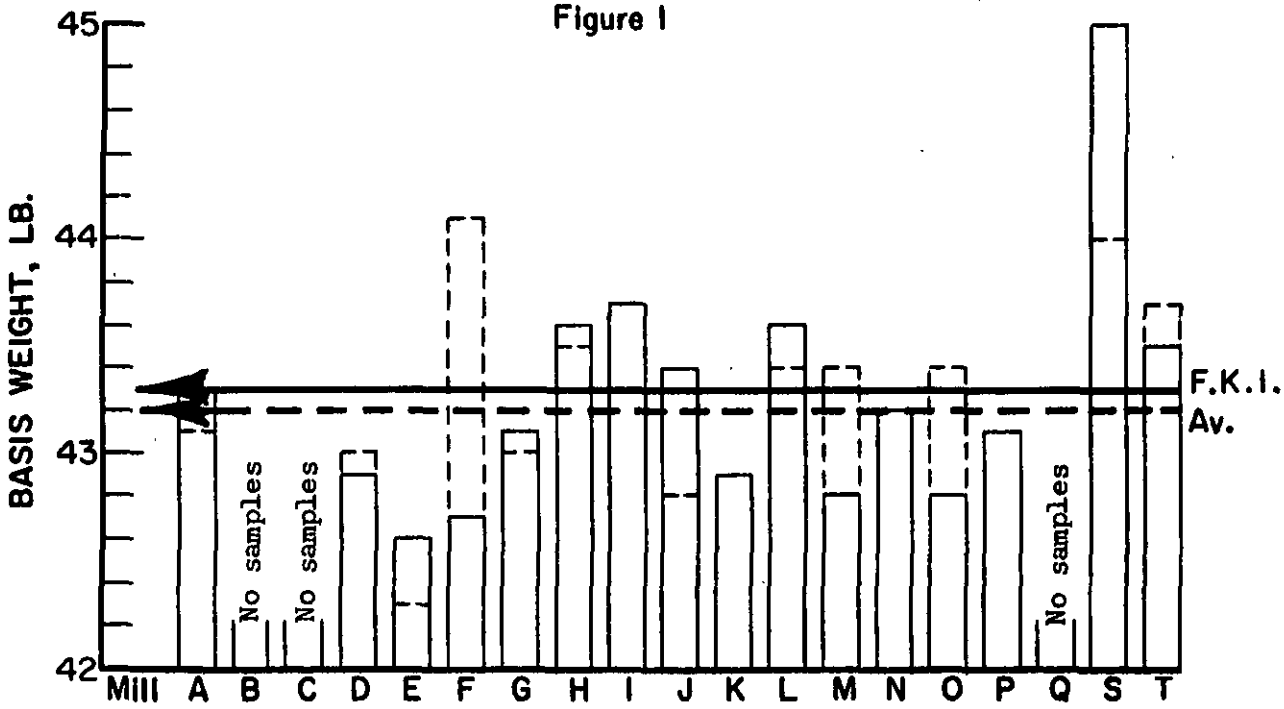
Mill Code	Number
A	4
B	0
C	0
D	9
E	1
F	2
G	14
H	4
I	7
J	1
K	6
L	1
M	12
N	4
O	1
P	8
Q	0
S	6
T	7
Total	87

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958

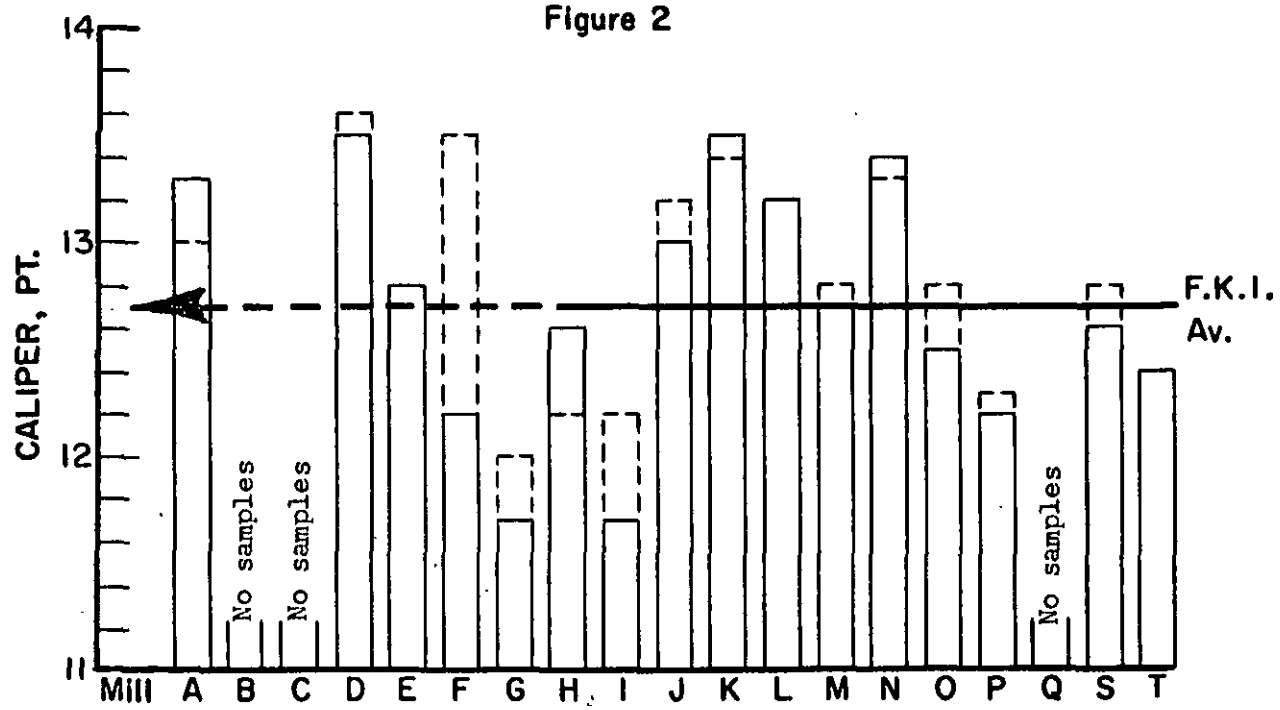
Mill	Basis Weight, lb.	Caliper, points	Bursting Strength p.s.i. gage	Elmendorf Tear, g./sheet In Machine	Elmendorf Tear, g./sheet Cross Machine
A	43.3	13.3	107	318	382
B	No samples submitted.				
C	No samples submitted.				
D	42.9	13.5	111	324	356
E	42.6	12.8	112	345	401
F	42.7	12.2	107	389	398
G	43.1	11.7	116	364	402
H	43.6	12.6	107	340	364
I	43.7	11.7	114	332	377
J	43.4	13.0	109	398	362
K	42.9	13.5	116	300	368
L	43.6	13.2	106	276	339
M	42.8	12.7	115	333	385
N	43.2	13.4	117	338	390
O	42.8	12.5	117	340	369
P	43.1	12.2	114	309	365
Q	No samples submitted.				
S	45.0	12.6	114	338	379
T	43.5	12.4	114	310	359
Current FKI Average:	43.3	12.7	112	335	375
Cumulative FKI Average:	43.2	12.7	112	332	375
FKI Index, %	100.2	100.0	100.0	100.9	100.0

Figure 1



COMPARISON OF BASIS WEIGHT RESULTS
(Period Sept. 1 - Sept. 30, 1958)

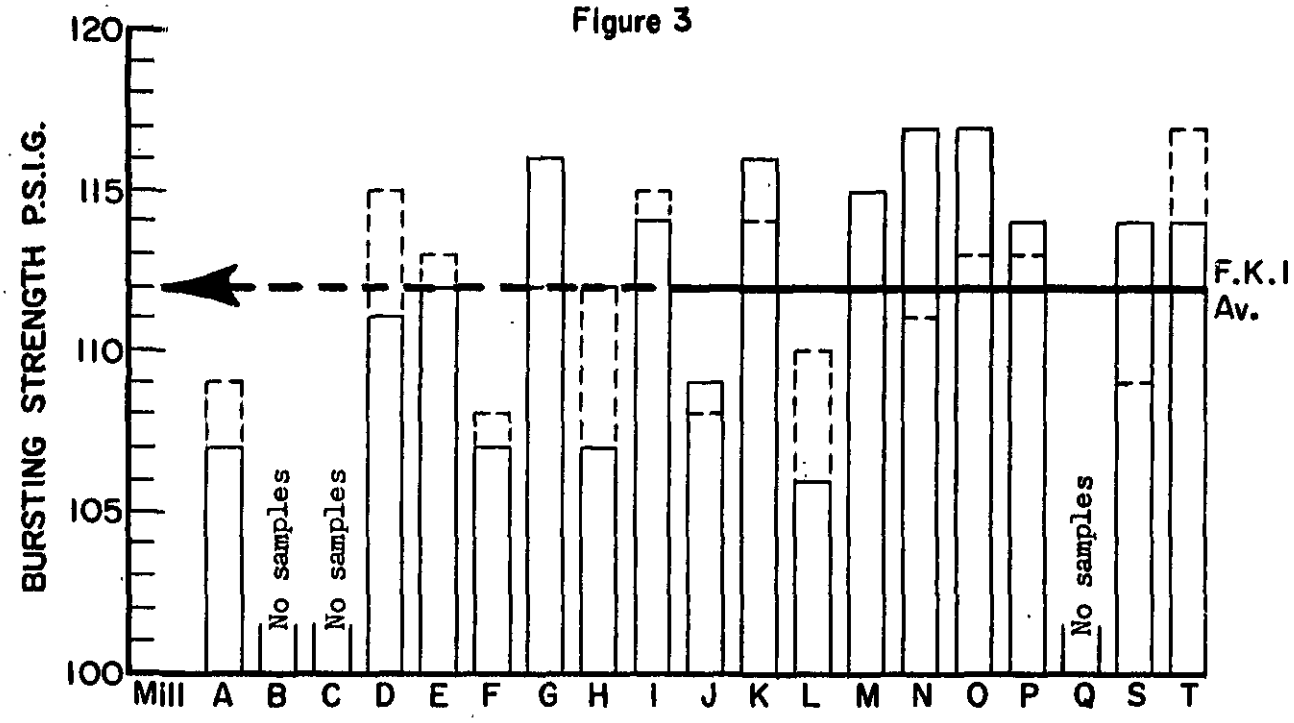
Figure 2



COMPARISON OF CALIPER RESULTS
(Period Sept. 1 - Sept. 30, 1958)

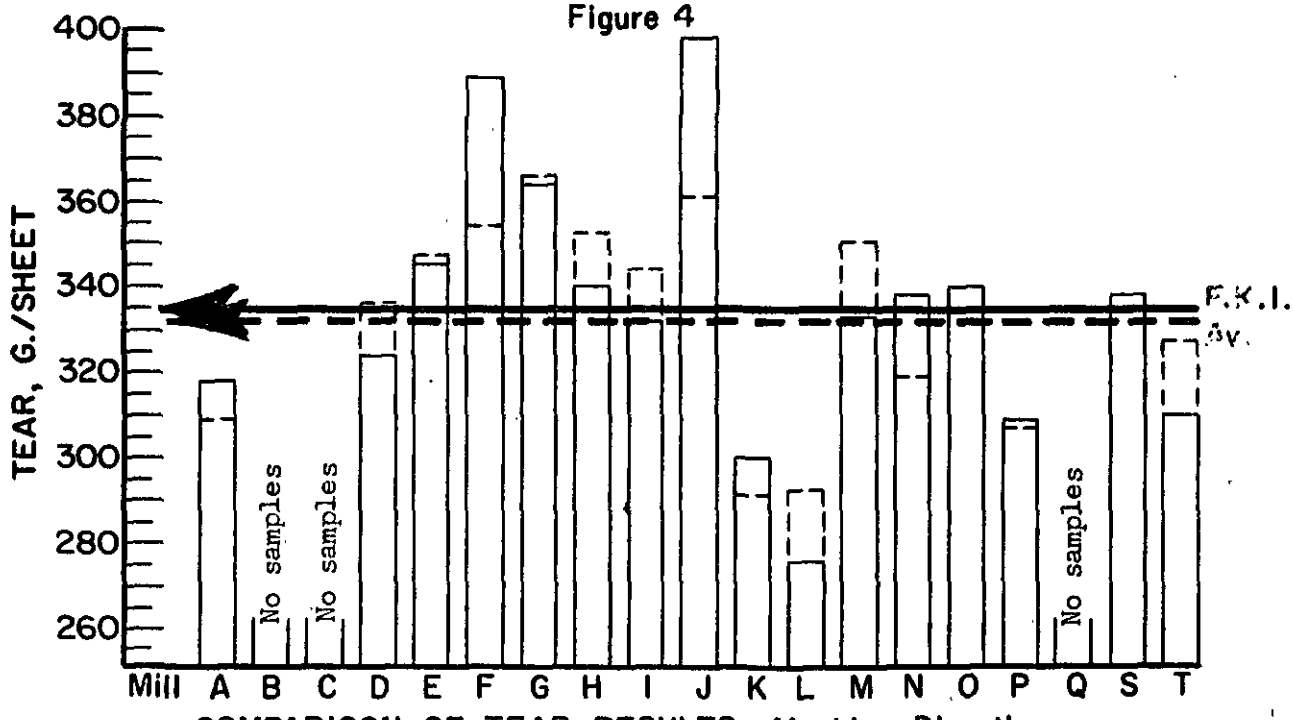
——— Current mill average
– – – – Cumulative mill average

Figure 3



COMPARISON OF BURSTING STRENGTH RESULTS
(Period Sept. 1 – Sept. 30, 1958)

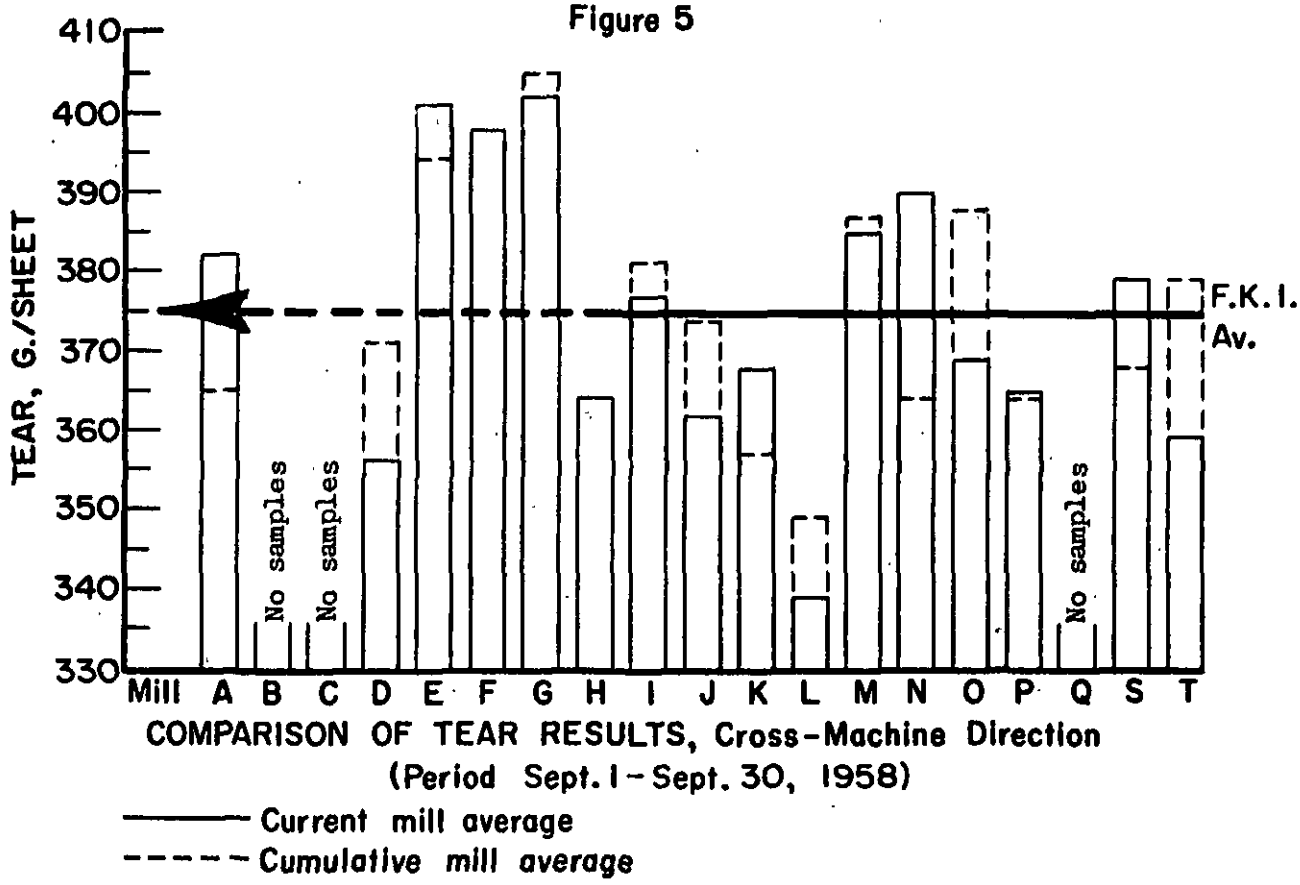
Figure 4



COMPARISON OF TEAR RESULTS, Machine Direction
(Period Sept. 1 – Sept. 30, 1958)

——— Current mill average
– – – – – Cumulative mill average

Figure 5



COMPARISON OF TEAR RESULTS, Cross-Machine Direction
(Period Sept. 1 - Sept. 30, 1958)

——— Current mill average
- - - - - Cumulative mill average

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.3 lb., and the cumulative F.K.I. average basis weight is 43.2 lb. Hence, the F.K.I. index for basis weight determined in per cent as indicated above is 100.2% and signifies that the current F.K.I. average basis weight is slightly higher than the cumulative F.K.I. average.

A comparison of the results in T able II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mill S had the highest average basis weight of 45.0 lb. which was approximately 7.1% higher than the 42-lb. specification. The lowest average basis weight of 42.6 lb., which was approximately 1.4% higher than the 42-lb. specification, was associated with Mill E.

The amount by which the mills vary from the 42-lb. specification is shown in Table II-A.

A comparison of the current F.K.I. average for basis weight for this period with that for the previous period shows that basis weight changed only slightly by its increase from 43.2 lb. to 43.3 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the current mill averages varied from a low of 11.7 points for Mills G and I to a high of 13.5 points for Mills D and K. The current F.K.I. average is 12.7 points, which is the same as the cumulative F.K.I. average.

TABLE II-A

PERCENTAGE DEVIATIONS FROM 42-LB. BASIS WEIGHT

SPECIFICATION

Mill Code	Per Cent
A	+3.1
B	--
C	--
D	+2.1
E	+1.4
F	+1.7
G	+2.6
H	+3.8
I	+4.0
J	+3.3
K	+2.1
L	+3.8
M	+1.9
N	+2.9
O	+1.9
P	+2.6
Q	--
S	+7.1
T	+3.6

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the current mill averages for bursting strength ranged from a low of 106 for Mill L to a high of 117 for Mills N and O. The current F.K.I. average bursting strength is 112 p.s.i. g., which is the same as the cumulative F.K.I. average.

A graphic comparison of the Elmendorf tear results shown in Table II for the various mills is given in Figures 4 and 5. These presentations show that Mill J had the highest average machine direction tear value of 398 g./sheet and that Mill L had the lowest value of 276 g./sheet. It may be further noted in Table II that the highest cross-machine direction tear value of 402 g./sheet was associated with Mill G and that the lowest value of 339 g./sheet was associated with Mill L. Mill L had the lowest values for both the machine and cross-machine directions. It may be observed also that the current F.K.I. average for machine direction Elmendorf tear is slightly higher than the cumulative F.K.I. average and the current F.K.I. average for cross-machine direction Elmendorf tear is the same as the cumulative F.K.I. average.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for caliper, bursting strength, and cross-machine direction Elmendorf tear are the same as their respective cumulative F.K.I. averages, whereas the current F.K.I. averages for basis weight and machine direction Elmendorf tear are slightly higher than their respective cumulative F.K.I. averages.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XXI for Mills A through T, respectively.

In addition to the current and cumulative average, the mill factor and mill index are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that the test data include information about the sheet finish. The summarized results for the mills which submitted sample lots during the current period are shown in Table XXI-A.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958

TABLE III

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179862	WF1S	9/ 2/58	8/ 8/58	1	44.4	41.0	42.5	13.6	12.2	13.0	141	77	109	352	272	317	416	312	366[a]
179863	WF1S	9/ 2/58	8/ 8/58	1	43.4	41.4	42.3	14.0	12.7	13.3	136	83	109	376	288	331[a]	432	360	386[a]
179867	WF1S	9/15/58	8/27/58	1	44.0	43.0	43.6	13.8	13.0	13.3	135	75	102	336	256	293	400	320	361[a]
179868	WF1S	9/15/58	8/28/58	1	45.6	44.0	44.7	14.0	13.0	13.5	136	80	109	384	272	331	448	384	415[a]
Current Mill Average:							43.3			13.3			107			318			382
Cumulative Mill Average:							43.1			13.0			109			309			365
Mill Factor, %							100.5			102.3			98.2			102.9			104.7
Mill Index, %							100.2			104.7			95.5			95.8			101.9

TABLE IV

MILL B -- 42-LB. LINERBOARD

No samples submitted.

TABLE V

MILL C -- 42-LB. LINERBOARD

No samples submitted.

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Rcvd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179782	WF1S	9/ 3/58	8/12/58	2	44.4	42.4	43.7	14.5	13.5	14.0	120	74	103	368	304	328[a]	400	320	357[a]
179783	WF1S	9/ 3/58	8/13/58	2	44.0	41.8	43.2	13.9	12.9	13.2	143	97	120	392	296	329[a]	392	336	364[a]
179842	WF1S	9/12/58	8/17/58	2	44.2	42.4	43.4	14.3	13.2	13.9	132	92	109	424	304	356[a]	392	320	357[a]
179843	WF1S	9/12/58	8/24/58	2	44.2	42.4	43.5	13.9	13.0	13.4	135	84	116	408	312	348[a]	416	320	377[a]
179844	WF1S	9/12/58	8/25/58	2	44.8	40.4	43.0	14.9	13.2	14.1	125	62	98	384	264	325[a]	400	328	356[a]
179913	WF1S	9/19/58	8/30/58	2	44.0	42.0	43.0	13.7	12.9	13.2	133	88	113	344	288	314[a]	376	336	349[a]
179935	WF1S	9/24/58	9/ 4/58	2	43.6	41.2	42.6	14.2	13.1	13.7	126	90	110	368	232	303[a]	368	296	344[a]
179967	WF1S	9/26/58	9/ 6/58	2	42.6	40.4	41.6	13.8	13.0	13.3	130	101	112	368	184	294[a]	368	304	336[a]
179968	WF1S	9/26/58	9/10/58	2	43.8	41.6	42.5	13.7	12.6	13.1	136	104	118	368	272	321[a]	424	336	364[a]
Current Mill Average:							42.9			13.5			111			324			356
Cumulative Mill Average:							43.0			13.6			115			336			371
Mill Factor, %							99.8			99.3			96.5			96.4			96.0
Mill Index, %							99.3			106.3			99.1			97.6			94.9

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE VII

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179931	----	9/23/58	9/15/58	2	43.4	41.8	42.6	13.7	12.2	12.8	124	96	112	408	280	345	432	360	401[a]
Current Mill Average:							42.6			12.8			112			345			401
Cumulative Mill Average:							42.3			12.8			113			347			394
Mill Factor, %							100.7			100.0			99.1			99.4			101.8
Mill Index, %							98.6			100.8			100.0			103.9			106.9

TABLE VIII

MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179780	W.F.	9/ 2/58	8/20/58	2	43.8	41.0	42.6	13.0	11.5	12.2	123	85	106	464	352	391	456	360	396[a]
179781	W.F.	9/ 2/58	8/20/58	2	43.6	42.0	42.8	13.0	11.5	12.3	128	75	108	480	312	387	464	336	399[a]
Current Mill Average:							42.7			12.2			107			389			398
Cumulative Mill Average:							44.1			13.5			108			354			398
Mill Factor, %							96.8			90.4			99.1			109.9			100.0
Mill Index, %							98.8			96.1			95.5			117.2			106.1

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE IX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179756	W.B.	9/ 2/58	8/ 5/58	-	44.0	42.0	43.3	12.2	11.2	11.8	127	85	113	432	320	379[a]	448	344	390[a]
179757	W.B.	9/ 2/58	8/ 6/58	-	44.4	41.8	43.4	12.3	11.3	11.9	135	104	119	400	312	357[a]	432	360	409[a]
179758	W.B.	9/ 2/58	8/12/58	-	43.4	41.4	42.6	12.4	11.2	11.8	134	97	115	400	312	359[a]	432	360	399[a]
179759	W.B.	9/ 2/58	8/12/58	-	43.4	42.2	42.8	12.3	10.7	11.5	141	98	123	368	312	340[a]	456	376	412[a]
179768	W.B.	9/ 2/58	8/13/58	-	43.4	41.6	42.7	11.9	10.8	11.4	128	91	115	424	320	374[a]	432	376	393[a]
179769	W.B.	9/ 2/58	8/13/58	-	43.6	41.6	42.8	11.5	10.0	11.0	145	105	120	448	344	388[a]	424	352	387[a]
179770	W.B.	9/ 2/58	8/17/58	-	44.2	42.6	43.6	12.4	11.5	11.9	129	90	113	464	280	359	448	376	408[a]
179771	W.B.	9/ 2/58	8/19/58	-	43.2	41.6	42.6	12.0	11.0	11.4	135	95	116	456	312	376[a]	440	344	385[a]
179772	W.B.	9/ 2/58	8/21/58	-	43.2	42.0	42.7	11.8	11.0	11.3	130	93	110	376	312	343	448	368	402[a]
179773	W.B.	9/ 2/58	8/25/58	-	44.4	42.6	43.4	12.2	11.4	11.9	130	101	118	416	328	373[a]	432	368	390[a]
179369	W.B.	9/15/58	9/ 6/58	-	45.6	41.0	43.5	13.0	11.9	12.2	131	99	120	384	320	363	456	400	420[a]
179370	W.B.	9/15/58	9/ 6/58	-	44.0	42.0	42.8	12.2	11.0	11.6	124	80	106	416	320	366	448	400	421[a]
179949	W.B.	9/25/58	9/16/58	-	45.2	41.6	43.7	12.2	10.8	11.7	135	102	119	424	328	383[a]	440	392	409[a]
179950	W.B.	9/25/58	9/16/58	-	44.4	41.4	43.4	12.7	11.0	12.1	127	88	115	384	280	339[a]	440	352	398[a]
Current Mill Average:							43.1			11.7			116			364			402
Cumulative Mill Average:							43.0			12.0			112			366			405
Mill Factor, %							100.2			97.5			103.6			99.5			99.3
Mill Index, %							99.8			92.1			103.6			109.6			107.2

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179976	W.F.	9/ 2/58	8/11/58	-	43.8	42.4	43.4	13.5	12.1	12.7	124	97	110	360	296	331	440	320	367[a]
179977	W.F.	9/ 2/58	8/11/58	-	44.6	42.2	43.6	13.1	11.2	12.3	125	88	109	400	296	348[a]	408	344	380[a]
179969	W.F.	9/26/58	9/ 9/58	-	44.0	43.0	43.6	13.0	12.2	12.5	121	92	106	368	312	341	392	320	356[a]
179970	W.F.	9/26/58	9/ 9/58	-	44.2	43.4	43.9	13.0	12.3	12.8	114	87	101	368	304	338	384	320	353[a]
Current Mill Average:							43.6			12.6			107			340			364
Cumulative Mill Average:							43.5			12.2			112			352			364
Mill Factor, %							100.2			103.3			95.5			96.6			100.0
Mill Index, %							100.9			99.2			95.5			102.4			97.1

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XIII

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179778	W.F.	9/ 2/58	8/12/58	1	44.0	42.4	43.2	14.0	13.0	13.4	141	85	119	336	280	306[a]	416	344	377[a]
179779	W.F.	9/ 2/58	8/14/58	1	44.0	42.6	43.3	15.3	14.3	14.9	135	87	110	376	288	339[a]	448	368	395[a]
179914	W.F.	9/19/58	8/19/58	1	44.0	42.0	43.0	14.0	13.0	13.5	138	84	115	328	248	282	448	336	373[a]
179915	W.F.	9/19/58	8/23/58	1	43.4	42.0	42.5	13.7	12.8	13.1	140	92	115	312	248	276	384	304	351[a]
179916	W.F.	9/19/58	8/26/58	1	43.8	42.0	42.6	13.6	12.9	13.1	142	96	117	320	240	281	384	296	349[a]
179917	W.F.	9/19/58	8/29/58	1	43.6	42.2	42.8	13.5	13.0	13.1	141	90	119	352	280	317	400	320	364[a]
Current Mill Average:							42.9			13.5			116			300			368
Cumulative Mill Average:							42.9			13.4			114			291			357
Mill Factor, %							100.0			100.7			101.8			103.1			103.1
Mill Index, %							99.3			106.3			103.6			90.4			98.1

TABLE XIV

MILL L -- 42-LB. LINERBOARD

179930	W.F.	9/23/58	9/ 5/58	1	44.4	42.6	43.6	14.3	12.2	13.2	125	79	106	312	248	276	392	304	339[a]
Current Mill Average:							43.6			13.2			106			276			339
Cumulative Mill Average:							43.4			12.7			110			292			349
Mill Factor, %							100.5			103.9			96.4			94.5			97.1
Mill Index, %							100.9			103.9			94.6			83.1			90.4

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

BUREAU OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XV

MILL M -- 42-LB. LINERBOARD

Mill No.	Finish	Date Recd.	Date Made	Mon. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179760	W.F.	9/ 2/58	7/27/58	2	43.0	42.0	42.4	13.1	12.3	12.7	137	97	113	360	280	322[a]	400	360	379[a]
179761	W.F.	9/ 2/58	7/28/58	2	43.2	42.0	42.5	13.1	12.3	12.6	137	94	119	352	280	326[a]	424	352	386[a]
179764	W.F.	9/ 2/58	8/ 3/58	2	43.2	42.0	42.4	13.2	12.2	12.8	125	85	107	376	280	333	424	360	380[a]
179765	W.F.	9/ 2/58	8/ 4/58	2	43.6	42.2	42.7	12.8	12.0	12.4	132	88	114	360	312	333	400	368	381[a]
179766	W.F.	9/ 2/58	8/11/58	2	43.8	42.4	43.2	13.2	12.0	12.7	138	95	116	360	296	333[a]	448	368	389[a]
179767	W.F.	9/ 2/58	8/12/58	2	43.6	42.4	43.0	13.4	12.2	12.8	142	96	116	368	296	325	432	344	389[a]
179734	W.F.	9/ 3/58	8/19/58	2	42.6	42.0	42.3	13.2	12.3	12.8	140	96	118	352	264	300	400	344	373[a]
179735	W.F.	9/ 3/58	8/20/58	2	43.4	42.2	42.8	12.9	12.0	12.5	143	99	120	400	280	337	448	368	398[a]
179736	W.F.	9/ 3/58	8/24/58	2	42.8	42.0	42.4	13.1	12.1	12.6	143	89	117	360	304	331	448	336	373[a]
179737	W.F.	9/ 3/58	8/25/58	2	43.2	42.2	42.6	13.0	12.1	12.4	132	99	119	368	264	317	408	336	381[a]
179860	W.F.	9/15/58	9/ 3/58	2	44.0	43.2	43.8	13.0	12.2	12.7	132	94	115	400	312	353[a]	416	352	383[a]
179929	W.F.	9/22/58	9/ 7/58	2	44.0	42.6	43.6	14.4	13.0	13.6	135	85	111	440	320	383	448	360	403[a]
Current Mill Average:							42.8			12.7			115			333			385
Cumulative Mill Average:							43.4			12.8			112			350			387
Mill Factor, %							98.6			99.2			102.7			95.1			99.5
Mill Index, %							99.1			100.0			102.7			100.3			102.7

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XVI

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179821	WF1S	9/11/58	9/ 4/58	1	45.6	43.0	44.1	14.0	12.8	13.3	145	93	117	384	288	337[a]	432	352	393[a]
179822	WF1S	9/11/58	9/ 4/58	1	45.6	43.0	44.1	14.2	13.0	13.3	143	102	118	448	288	342[a]	432	352	391[a]
179894	WF1S	9/18/58	9/ 8/58	1	43.0	41.6	42.4	14.0	13.0	13.5	132	90	117	384	288	333	416	336	381[a]
179895	WF1S	9/18/58	9/12/58	1	43.0	42.0	42.4	14.0	13.1	13.5	136	97	116	384	304	341[a]	464	368	394[a]
Current Mill Average:							43.2			13.4			117			338			390
Cumulative Mill Average:							43.2			13.3			111			319			364
Mill Factor, %							100.0			100.8			105.4			106.0			107.1
Mill Index, %							100.0			105.5			104.5			101.8			104.0

TABLE XVII

MILL O -- 42-LB. LINERBOARD

179926	WF1S	9/22/58	9/16/58	2	44.0	42.0	42.8	13.1	12.0	12.5	133	100	117	360	320	340[a]	424	328	369[a]
Current Mill Average:							42.8			12.5			117			340			369
Cumulative Mill Average:							43.4			12.8			113			340			388
Mill Factor, %							98.6			97.7			103.5			100.0			95.1
Mill Index, %							99.1			98.4			104.5			102.4			98.4

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179774	W.F.	9/ 2/58	8/22/58	2	44.2	43.6	44.0	12.7	12.0	12.3	134	96	113	368	272	313	384	336	357[a]
179775	W.F.	9/ 2/58	8/22/58	2	44.2	43.6	43.9	12.8	12.0	12.2	136	93	112	336	256	295	392	320	356[a]
179813	W.F.	9/ 5/58	8/25/58	2	44.2	43.6	43.8	13.2	11.9	12.5	131	101	115	392	256	317[a]	440	336	388[a]
179814	W.F.	9/ 5/58	8/25/58	2	43.0	42.2	42.6	12.8	11.8	12.1	131	98	117	408	272	311	392	328	365[a]
179865	W.F.	9/15/58	9/ 5/58	2	43.6	42.0	42.8	12.4	11.7	12.0	136	92	114	360	256	305[a]	416	344	370[a]
179866	W.F.	9/15/58	9/ 5/58	2	43.6	42.2	42.7	12.5	11.4	12.0	136	85	115	352	280	317[a]	424	320	361[a]
179875	W.F.	9/17/58	9/ 9/58	2	43.0	42.0	42.2	12.9	11.5	12.1	132	81	113	352	272	307	384	336	355[a]
179876	W.F.	9/17/58	9/ 9/58	2	43.4	42.0	42.4	12.6	11.8	12.1	137	94	115	376	256	309	392	336	369[a]
Current Mill Average:							43.1			12.2			114			309			365
Cumulative Mill Average:							43.1			12.3			113			307			364
Mill Factor, %							100.0			99.2			100.9			100.7			100.3
Mill Index, %							99.8			96.1			101.8			93.1			97.3

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.

No samples submitted.

TABLE XX

MILL S -- 42-LB. LINERBOARD

179816	W.F.	9/ 8/58	8/27/58	-	45.8	44.2	45.1	13.8	12.2	13.1	130	93	112	392	312	347[a]	424	320	380[a]
179817	W.F.	9/ 8/58	8/28/58	-	46.0	43.8	45.5	12.8	11.8	12.2	133	105	120	368	272	335[a]	400	264	363[a]
179818	W.F.	9/ 8/58	8/29/58	-	44.4	41.6	43.6	13.3	12.5	12.9	132	90	108	376	296	339[a]	432	344	388[a]
179857	W.F.	9/15/58	9/ 8/58	-	48.4	46.8	47.5	13.1	12.6	12.9	132	97	117	400	320	354	472	368	402[a]
179858	W.F.	9/15/58	9/ 9/58	-	43.4	42.2	42.7	12.3	11.8	12.0	128	93	113	368	272	316	400	320	351[a]
179859	W.F.	9/15/58	9/10/58	-	46.0	45.6	45.9	13.1	12.2	12.7	146	88	116	384	320	336[a]	416	368	387[a]
Current Mill Average:							45.0			12.6			114			338			379
Cumulative Mill Average:							44.0			12.8			109			338			368
Mill Factor, %							102.3			98.4			104.6			100.0			103.0
Mill Index, %							104.2			99.2			101.8			101.8			101.1

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXI

MILL T -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179820	W.F.	9/ 8/58	8/29/58	2	44.0	42.2	42.8	12.2	11.4	11.8	130	95	115	312	256	283	368	312	333[a]
179861	W.F.	9/15/58	9/ 6/58	2	44.2	43.0	43.7	13.0	12.0	12.4	133	93	116	352	288	316[a]	400	344	375[a]
179862	W.F.	9/15/58	9/ 6/58	2	44.2	42.2	43.5	12.8	12.0	12.4	144	100	117	376	288	337	416	320	372[a]
179863	W.F.	9/15/58	9/ 7/58	2	44.4	43.6	44.1	13.1	12.1	12.9	129	87	112	344	280	313	384	344	365[a]
179864	W.F.	9/15/58	9/ 7/58	2	44.6	43.4	44.0	13.2	12.9	13.0	127	102	113	344	280	310[a]	384	336	364[a]
179927	W.F.	9/22/58	9/14/58	2	43.6	42.2	42.8	12.4	12.0	12.2	128	98	114	320	272	305	400	328	361[a]
179928	W.F.	9/22/58	9/14/58	2	44.0	42.2	43.4	12.4	12.0	12.1	122	103	113	368	272	305	368	320	344[a]
Current Mill Average:							43.5			12.4			114			310			359
Cumulative Mill Average:							43.7			12.4			117			327			379
Mill Factor, %							99.5			100.0			97.4			94.8			94.7
Mill Index, %							100.7			97.6			101.8			93.4			95.7

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE XXI-A

SUMMARY OF SHEET FINISH DATA

Mill Code	(No. of Sample Lots) Finish W.F.	W.F.I.S.	Other
A		4	
B	No samples submitted.		
C	No samples submitted.		
D		9	
E			1[a]
F	2		
G			14[b]
H	4		
I	7		
J	1		
K	6		
L	1		
M	12		
N		4	
O		1	
P	8		
Q	No samples submitted.		
S	6		
T	7		
Total	54	18	15

[a] Unidentified.

[b] W.B.

PART II. DISCUSSION AND COMPARISON OF RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY WITH THOSE OBTAINED AT THE MILLS

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the preconditioning and conditioning time varied considerably.

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the current period and the two previous periods.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the overall average difference between Institute and mill test results based on the data for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the overall average differences shown for each test in Table XXIII have been calcuated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

TABLE XXII

PRECONDITIONING AND CONDITIONING DATA FOR THE MILL TESTS

Mill Code	Preconditioning R.H., %	Preconditioning Temperature, °F.	Preconditioning Time, hr.	Conditioning R.H., %	Conditioning Temperature, °F.	Conditioning Time, hr.
A	50	74	72-195	50	74	2
B			No samples submitted.			
C			No samples submitted.			
D	50-52	72	24		None	
E		None		50	73	24
F	50	73	24	50	73	24
G		None		51-56	73-76	48
H		None		50	73	0.5
I		None		50	73	24-48+
J		None		53	73	--
K		None		48-74	84-88	--
L	46	78	0.5	50	73	24
M		None		50	73	24
N		None		48-66	82-90	--
O	50	73	24	50	73	24
P	50	73	24	50	73	24
Q			No samples submitted.			
S	35-36	77-79	8	48-52	72-73	16
T		None		50	73	24

TABLE XXIII

SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS)

Mills*	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T
No. Samples Compared	4	0	0	9	1	2	14	4	7	1	6	1	12	4	1	8	0	6	7
Basis Weight																			
Institute	43.3			42.9	42.6	42.7	43.1	43.6	43.7	43.4	42.9	43.6	42.8	43.2	42.8	43.1		45.0	43.5
Mill	43.1			43.2	41.5	42.3	42.7	42.6	43.7	43.0	42.1	42.9	42.8	42.7	42.8	43.2		44.5	43.1
Av. Diff.**	-0.2			+0.3	-1.1	-0.4	-0.4	-1.0	0.0	-0.4	-0.8	-0.7	0.0	-0.5	0.0	+0.1		-0.5	-0.4
Max. Diff.***	-1.0			+0.9	-1.1	-0.5	-0.9	-1.4	+0.6	-0.4	-1.1	-0.7	±0.6	-1.4	0.0	+0.8		-0.9	-0.7
Caliper																			
Institute	13.3			13.5	12.8	12.2	11.7	12.6	11.7	13.0	13.5	13.2	12.7	13.4	12.5	12.2		12.6	12.4
Mill	12.9			13.3	12.5	11.7	11.3	12.2	11.8	13.0	13.0	13.0	12.2	13.0	12.2	11.8		12.4	12.2
Av. Diff.**	-0.4			-0.2	-0.3	-0.5	-0.4	-0.4	+0.1	0.0	-0.5	-0.2	-0.5	-0.4	-0.3	-0.4		-0.2	-0.2
Max. Diff.**	-0.6			-0.7	-0.3	-0.5	-0.6	-0.5	+0.2	0.0	-0.6	-0.2	-0.8	-0.6	-0.3	-0.4		-0.3	-0.4
Bursting Strength																			
Institute	107			111	112	107	116	107	114	109	116	106	115	117	117	114		114	114
Mill	103			110	108	110	115	106	115	115	113	110	119	110	100	113		116	116
Av. Diff.**	-4			-1	-4	+3	-1	-1	+1	+6	-3	+4	+4	-7	-17	-1		+2	+2
Max. Diff.***	-8			-6	-4	+5	+10	-4	+8	+6	-10	+4	+13	-10	-17	-5		+8	+3
Tearing Strength, in																			
Institute	318			324	345	389	364	340	332	398	300	276	333	338	340	309		338	310
Mill	303			344	—	341	347	326	326	371	259	297	361	377	319	305		327	318
Av. Diff.**	-15			+20	—	-48	-17	-14	-6	-27	-41	+21	+28	+39	-21	-4		-11	+8
Max. Diff.***	-42			+79	—	-54	-57	-27	-32	-27	-53	+21	+63	+48	-21	-24		-31	+41
Tearing Strength, across																			
Institute	382			356	401	398	402	364	377	362	368	339	385	390	369	365		379	359
Mill	397			374	—	401	395	365	397	370	358	361	424	434	404	368		372	380
Av. Diff.**	+15			+18	—	+3	-7	+1	+20	+8	-10	+22	+39	+44	+35	+3		-7	+21
Max. Diff.***	+51			+44	—	+8	-26	+7	+41	+8	-41	+22	+74	+77	+35	+34		-18	+46

* Comparison based on averages involved only those samples on which mill test data were submitted.
** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
*** Maximum difference encountered in comparing the Institute average and the mill average for any sample submitted by that particular mill.

TABLE XXIV

COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS
Average Difference, Per Cent

Mill	Period	Basis Weight	Caliper	Burst	Tear, in	Tear, across
A	Current	-0.5	-3	-4	-5	+4
	134th	-2	-4	-3	-6	+4
	133rd	-1	-4	-6	-13	+0.5
B	Current	-	-	-	-	-
	134th	-	-	-	-	-
	133rd	-	-	-	-	-
C	Current	-	-	-	-	-
	134th	-0.9	0	-2	+11	+9
	133rd	-2	-2	-4	+23	+7
D	Current	+0.7	-1	-0.9	+6	+5
	134th	+0.9	-3	+2	+3	+9
	133rd	+1	-0.8	-0.9	+2	+9
E	Current	-3	-2	-4	-	-
	134th	0	-3	-5	-	-
	133rd	-0.9	-3	-5	-	-
F	Current	-0.9	-4	+3	-12	+0.8
	134th	-0.7	-5	0	+1	+12
	133rd	0	-2	+5	+3	+3
G	Current	-0.9	-3	-0.9	-5	-2
	134th	+0.2	-3	0	-2	+2
	133rd	-	-	-	-	-
H	Current	-2	-3	-0.9	-4	+0.3
	134th	-3	-2	0	-7	+0.8
	133rd	-3	-2	0	-0.6	+1
I	Current	0	+0.9	+0.9	-2	+5
	134th	-0.2	0	-0.9	-4	+6
	133rd	-1	0	-0.9	-2	+3
J	Current	-0.9	0	+6	-7	+2
	134th	-2	-6	+1	-6	-4
	133rd	-1	-5	+4	-5	-3
K	Current	-2	-4	-3	-14	-3
	134th	-1	-4	0	-7	+3
	133rd	-3	-4	-3	-6	+1
L	Current	-2	-2	+4	+8	+6
	134th	-0.2	0	+0.9	0	+3
	133rd	-0.2	+0.8	-2	+8	+7
M	Current	0	-4	+3	+8	+10
	134th	+0.5	-4	+5	+9	+13
	133rd	-0.2	-4	+3	+9	+12
N	Current	-1	-3	-6	+12	+11
	134th	-2	-4	-6	+11	+18
	133rd	-2	-2	-4	+27	+15
O	Current	0	-2	-15	-6	+9
	134th	-0.7	-2	-7	-11	-1
	133rd	-0.5	-4	0	-1	+4
P	Current	+0.2	-3	-0.9	-1	+0.8
	134th	+0.5	-2	-2	-1	+1
	133rd	-0.7	-2	-3	+0.7	-3
Q	Current	-	-	-	-	-
	134th	-	-	-	-	-
	133rd	-1	-2	-7	-10	-5
S	Current	-1	-2	+2	-3	-2
	134th	-0.7	-2	0	-3	-3
	133rd	-0.7	-2	+0.9	-4	-4
T	Current	-1	-2	+2	+3	+6
	134th	-1	-2	+2	+3	+5
	133rd	-2	-2	-2	-3	+1

It may be noted in Table XXIV that the largest average difference (per cent) between the average basis weight results of the Institute and those of a given mill on corresponding samples is three per cent for the current period. By comparison, the largest average difference (per cent) noted for the previous two periods was also three per cent. Further, it may be noted that the average basis weight results for Mills D and P were higher than those for the Institute, the average results for Mills I, M, and O were the same, and the average results for the other mills were lower. The variation associated with Mill E may be excessive.

The maximum variation in caliper for the current period is four per cent. This is lower than the maximum variation of six per cent for the previous two periods. Compared with the Institute's results, the average test result for Mill I was higher, the average test result for Mill J was the same, and the average test results for the other mills were lower. The variations of 0.5 point or more for Mills F, K, and M may be excessive.

It may be noted in Table XXIII that the bursting strength results exhibited a maximum variation of fifteen per cent for the current period. The average results for Mills F, I, J, L, M, S, and T were higher than those for the Institute, and the average results for the other mills were lower. Only the variation of fifteen per cent associated with Mill O appears to be exceptionally large. Agreement between Institute and Mill results is very good in most instances.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills D, L, M, N, and T were higher than those for the Institute, and the average results for the other mills were lower.

The maximum variation for the current period was fourteen per cent. Agreement between the Institute and mill results is good in most cases. However, several mills--namely, F, K, and N--are associated with differences greater than ten per cent which may be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills A, D, F, H, I, J, L, M, N, O, P, and T were higher than those for the Institute, whereas the average results for Mills G, K, and S were lower. The maximum variation for the current period was eleven per cent. As in the case of the machine direction results, agreement between Institute and mill results is generally good. Only Mill N is associated with a test result which varies by more than ten per cent from the Institute result and consequently may be excessive. The variations noted for Mills M and O are also large.

The comparisons for individual sample lots are given in Tables XXV to XLIII for the various mills. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179762	WF1S	8/ 8/58	1	42.5	42.8	+0.3	13.0	12.9	-0.1	109	105	- 4	317	321	+ 4	366[a]	417	+51
179763	WF1S	8/ 8/58	1	42.3	42.9	+0.6	13.3	13.0	-0.3	109	101	- 8	331[a]	289	-42	386[a]	395	+ 9
179867	WF1S	8/27/58	1	43.6	43.2	-0.4	13.3	12.7	-0.6	102	98	- 4	293	260	-33	361[a]	351	-10
179868	WF1S	8/28/58	1	44.7	43.7	-1.0	13.5	13.0	-0.5	109	106	- 3	331	341	+10	415[a]	425	+10
Current Mill Average:				43.3	43.1	-0.2	13.3	12.9	-0.4	107	103	- 4	318	303	-15	382	397	+15

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

No samples submitted

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

No samples submitted

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179782	WF1S	8/12/58	2	43.7	44.1	+0.4	14.0	13.5	-0.5	103	101	-2	328[a]	320	- 8	357[a]	378	+21
179783	WF1S	8/13/58	2	43.2	43.4	+0.2	13.2	13.0	-0.2	120	118	-2	329[a]	330	+ 1	364[a]	406	+42
179842	WF1S	8/17/58	2	43.4	43.0	-0.4	13.9	13.8	-0.1	109	108	-1	356[a]	358	+ 2	357[a]	344	-13
179843	WF1S	8/24/58	2	43.5	43.7	+0.2	13.4	13.0	-0.4	116	112	-4	348[a]	341	- 7	377[a]	364	-13
179844	WF1S	8/25/58	2	43.0	42.8	-0.2	14.1	13.8	-0.3	98	100	+2	325[a]	360	+35	356[a]	369	+13
179913	WF1S	8/30/58	2	43.0	43.8	+0.8	13.2	13.0	-0.2	113	115	+2	314[a]	348	+34	349[a]	384	+35
179935	WF1S	9/ 4/58	2	42.6	43.3	+0.7	13.7	13.0	-0.7	110	115	+5	303[a]	336	+33	344[a]	365	+21
179967	WF1S	9/ 6/58	2	41.6	42.5	+0.9	13.3	13.2	-0.1	112	108	-4	294[a]	373	+79	336[a]	380	+44
179968	WF1S	9/10/58	2	42.5	42.6	+0.1	13.1	13.0	-0.1	118	112	-6	321[a]	329	+ 8	364[a]	379	+15
Current Mill Average:				42.9	43.2	+0.3	13.5	13.3	-0.2	111	110	-1	324	344	+20	356	374	+18

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179931	----	9/15/58	2	42.6	41.5	-1.1	12.8	12.5	-0.3	112	108	-4	345			401[a]		
Current Mill Average:				42.6	41.5	-1.1	12.8	12.5	-0.3	112	108	-4	345			401		

TABLE XXX

MILL F -- 42-LB. LINERBOARD

179780	W.F.	8/20/58	2	42.6	42.2	-0.4	12.2	11.7	-0.5	106	111	+5	391	349	-42	396[a]	395	- 1
179781	W.F.	8/20/58	2	42.8	42.3	-0.5	12.3	11.8	-0.5	108	110	+2	387	333	-54	399[a]	407	+ 8
Current Mill Average:				42.7	42.3	-0.4	12.2	11.7	-0.5	107	110	+3	389	341	-48	398	401	+ 3

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179756	W.B.	8/ 5/58	-	43.3	43.2	-0.1	11.8	11.5	-0.3	113	115	+ 2	379[a]	363	-16	390[a]	404	+14
179757	W.B.	8/ 6/58	-	43.4	43.4	0.0	11.9	11.5	-0.4	119	116	- 3	357[a]	344	-13	409[a]	414	+ 5
179758	W.B.	8/12/58	-	42.6	42.2	-0.4	11.8	11.6	-0.2	115	113	- 2	359[a]	368	+ 9	399[a]	395	- 4
179759	W.B.	8/12/58	-	42.8	42.4	-0.4	11.5	11.3	-0.2	123	120	- 3	340[a]	333	- 7	412[a]	393	-19
179768	W.B.	8/13/58	-	42.7	42.6	-0.1	11.4	11.0	-0.4	115	111	- 4	374[a]	348	-26	393[a]	377	-16
179769	W.B.	8/13/58	-	42.8	42.8	0.0	11.0	10.9	-0.1	120	119	- 1	388[a]	363	-25	387[a]	397	+10
179770	W.B.	8/17/58	-	43.6	42.9	-0.7	11.9	11.4	-0.5	113	112	- 1	359	353	- 6	408[a]	403	- 5
179771	W.B.	8/19/58	-	42.6	42.3	-0.3	11.4	11.0	-0.4	116	113	- 3	376[a]	348	-28	385[a]	359	-26
179772	W.B.	8/21/58	-	42.7	42.2	-0.5	11.3	10.7	-0.6	110	114	+ 4	343	331	-12	402[a]	405	+ 3
179773	W.B.	8/25/58	-	43.4	42.5	-0.9	11.9	11.6	-0.3	118	110	- 8	373[a]	316	-57	390[a]	364	-26
179869	W.B.	9/ 6/58	-	43.5	42.6	-0.9	12.2	11.7	-0.5	120	118	- 2	363	331	-32	420[a]	395	-25
179870	W.B.	9/ 6/58	-	42.8	42.9	+0.1	11.6	11.3	-0.3	106	116	+10	366	347	-19	421[a]	431	+10
179949	W.B.	9/16/58	-	43.7	43.3	-0.4	11.7	11.3	-0.4	119	126	+ 7	383[a]	373	-10	409[a]	395	-14
179950	W.B.	9/16/58	-	43.4	43.0	-0.4	12.1	11.8	-0.3	115	112	- 3	339[a]	335	-14	398	396	- 2
Current Mill Average:				43.1	42.7	-0.4	11.7	11.3	-0.4	116	115	- 1	364	347	-17	402	395	- 7

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXXII

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179776	W.F.	8/11/58	-	43.4	42.5	-0.9	12.7	12.2	-0.5	110	106	-4	331	339	+ 8	367[a]	369	+ 2
179777	W.F.	8/11/58	-	43.6	42.7	-0.9	12.3	12.1	-0.2	109	109	0	348[a]	331	-17	380[a]	375	- 5
179969	W.F.	9/ 9/58	-	43.6	42.6	-1.0	12.5	12.4	-0.1	106	103	-3	341	321	-20	356[a]	357	+ 1
179970	W.F.	9/ 9/58	-	43.9	42.5	-1.4	12.8	12.3	-0.5	101	104	+3	338	311	-27	353[a]	360	+ 7
Current Mill Average:				43.6	42.6	-1.0	12.6	12.2	-0.4	107	106	-1	340	326	-14	364	365	+ 1

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

179871	W.F.	8/28/58	-	43.5	43.3	-0.2	12.3	12.2	-0.1	109	108	-1	339[a]	307	-32	375[a]	379	+ 4
179872	W.F.	8/30/58	-	43.9	44.5	+0.6	12.3	12.5	+0.2	114	110	-4	341[a]	317	-24	384[a]	399	+15
179873	W.F.	9/ 4/58	-	43.2	43.3	+0.1	11.7	11.6	-0.1	113	110	-3	329	333	+ 4	368[a]	367	- 1
179874	W.F.	9/10/58	-	43.5	43.0	-0.5	10.6	10.8	+0.2	122	122	0	325	312	-13	366[a]	407	+41
179923	W.F.	9/16/58	-	43.4	43.4	0.0	11.5	11.7	+0.2	115	122	+7	316[a]	340	+24	369[a]	397	+28
179924	W.F.	9/16/58	-	44.5	44.4	-0.1	11.8	11.8	0.0	117	118	+1	321[a]	316	- 5	377[a]	403	+26
179925	W.F.	9/16/58	-	43.7	44.0	+0.3	11.5	11.7	+0.2	109	117	+8	350[a]	353	+ 3	399[a]	431	+32
Current Mill Average:				43.7	43.7	0.0	11.7	11.8	+0.1	114	115	+1	332	326	- 6	377	397	+20

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tea. g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179819	W.	8/ 7/58	2	43.4	43.0	-0.4	13.0	13.0	0.0	109	115	+ 6	398[a]	371	-27	362[a]	370	+ 8
Current Mill Average:				43.4	43.0	-0.4	13.0	13.0	0.0	109	115	+ 6	398	371	-27	362	370	+ 8

TABLE XXXV

MILL K -- 42-LB. LINERBOARD

179778	W.F.	8/12/58	1	43.2	42.2	-1.0	13.4	12.9	-0.5	119	109	-10	306[a]	271	-35	377[a]	364	-13
179779	W.F.	8/14/58	1	43.3	42.4	-0.9	14.9	14.3	-0.6	110	109	- 1	339[a]	286	-53	395[a]	379	-16
179914	W.F.	8/19/58	1	43.0	41.9	-1.1	13.5	12.9	-0.6	115	115	0	282	250	-32	373[a]	332	-41
179915	W.F.	8/23/58	1	42.5	42.0	-0.5	13.1	12.7	-0.4	115	115	0	276	234	-42	351[a]	350	- 1
179916	W.F.	8/26/58	1	42.6	42.1	-0.5	13.1	12.7	-0.4	117	114	- 3	281	237	-44	349[a]	358	+ 9
179917	W.F.	8/29/58	1	42.8	42.1	-0.7	13.1	12.7	-0.4	119	115	- 4	317	274	-43	364[a]	366	+ 2
Current Mill Average:				42.9	42.1	-0.8	13.5	13.0	-0.5	116	113	- 3	300	259	-41	368	358	-10

TABLE XXXVI

MILL L -- 42-LB. LINERBOARD

179930	W.F.	9/ 5/58	1	43.6	42.9	-0.7	13.2	13.0	-0.2	106	110	+ 4	276	297	+21	339[a]	361	+22
Current Mill Average:				43.6	42.9	-0.7	13.2	13.0	-0.2	106	110	+ 4	276	297	+21	339	361	+22

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXXVII

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179760	W.F.	7/27/58	2	42.4	42.5	+0.1	12.7	12.2	-0.5	113	119	+ 6	322[a]	341	+19	379[a]	401	+22
179761	W.F.	7/28/58	2	42.5	42.8	+0.3	12.6	12.0	-0.6	119	121	+ 2	326[a]	360	+34	386[a]	417	+31
179764	W.F.	8/ 3/58	2	42.4	42.4	0.0	12.8	12.1	-0.7	107	120	+13	333	340	+ 7	380[a]	412	+32
179765	W.F.	8/ 4/58	2	42.7	42.6	-0.1	12.4	12.0	-0.4	114	120	+ 6	333	366	+33	381[a]	415	+34
179766	W.F.	8/11/58	2	43.2	43.1	-0.1	12.7	12.0	-0.7	116	119	+ 3	333[a]	352	+19	389[a]	439	+50
179767	W.F.	8/12/58	2	43.0	42.6	-0.4	12.8	12.0	-0.8	116	117	+ 1	325	347	+22	389[a]	409	+20
179784	W.F.	8/19/58	2	42.3	42.6	+0.3	12.8	12.3	-0.5	118	119	+ 1	300	363	+63	373[a]	409	+36
179785	W.F.	8/20/58	2	42.8	42.7	-0.1	12.5	12.0	-0.5	120	120	0	337	356	+19	398[a]	436	+38
179786	W.F.	8/24/58	2	42.4	43.0	+0.6	12.6	12.1	-0.5	117	121	+ 4	331	351	+20	373[a]	438	+65
179787	W.F.	8/25/58	2	42.6	43.0	+0.4	12.4	12.0	-0.4	119	122	+ 3	317	367	+50	381[a]	422	+41
179860	W.F.	9/ 3/58	2	43.8	43.7	-0.1	12.7	12.4	-0.3	115	122	+ 7	353[a]	393	+40	383[a]	457	+74
179929	W.F.	9/ 7/58	2	43.6	43.0	-0.6	13.6	13.1	-0.5	111	115	+ 4	383	393	+10	403[a]	430	+27
Current Mill Average:				42.8	42.8	0.0	12.7	12.2	-0.5	115	119	+ 4	333	361	+28	385	424	+39

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XXXVIII

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179821	WF1S	9/ 4/58	1	44.1	42.7	-1.4	13.3	12.9	-0.4	117	113	- 4	337[a]	367	+30	393[a]	412	+19
179822	WF1S	9/ 4/58	1	44.1	42.9	-1.2	13.3	12.9	-0.4	118	111	- 7	342[a]	374	+32	391[a]	417	+26
179894	WF1S	9/ 8/58	1	42.4	42.3	-0.1	13.5	13.0	-0.5	117	107	-10	333	381	+48	381[a]	458	+77
179895	WF1S	9/12/58	1	42.4	42.7	+0.3	13.5	12.9	-0.6	116	109	- 7	341[a]	387	+46	394[a]	450	+56
Current Mill Average:				43.2	42.7	-0.5	13.4	13.0	-0.4	117	110	- 7	338	377	+39	390	434	+44

TABLE XXXIX

MILL O -- 42-LB. LINERBOARD

179926	WF1S	9/16/58	2	42.8	42.8	0.0	12.5	12.2	-0.3	117	100	-17	340[a]	319	-21	369[a]	404	+35
Current Mill Average:				42.8	42.8	0.0	12.5	12.2	-0.3	117	100	-17	340	319	-21	369	404	+35

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are caluclated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XL

MILL P -- 42-lb. Linerboard

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179774	W.F.	8/22/58	2	44.0	43.7	-0.3	12.3	12.0	-0.3	113	112	-1	313	305	- 8	357[a]	370	+13
179775	W.F.	8/22/58	2	43.9	43.7	-0.2	12.2	12.0	-0.2	112	108	-4	295	299	+ 4	356[a]	390	+34
179813	W.F.	8/25/58	2	43.8	43.9	+0.1	12.5	12.1	-0.4	115	110	-5	317[a]	310	- 7	388[a]	367	-21
179814	W.F.	8/25/58	2	42.6	42.9	+0.3	12.1	11.8	-0.3	117	112	-5	311	287	-24	365[a]	339	-26
179865	W.F.	9/ 5/58	2	42.8	42.8	0.0	12.0	11.8	-0.2	114	115	+1	305[a]	296	- 9	370[a]	353	-17
179866	W.F.	9/ 5/58	2	42.7	42.7	0.0	12.0	11.7	-0.3	115	115	0	317[a]	315	- 2	361[a]	363	+ 2
179875	W.F.	9/ 9/58	2	42.2	43.0	+0.8	12.1	11.7	-0.4	113	117	+4	307	311	+ 4	355[a]	385	+30
179876	W.F.	9/ 9/58	2	42.4	43.1	+0.7	12.1	11.7	-0.4	115	115	0	309	316	+ 7	369[a]	374	+ 5
Current Mill Average:				43.1	43.2	+0.1	12.2	11.8	-0.4	114	113	-1	309	305	- 4	365	368	+ 3

TABLE XLI

MILL Q -- 42-LB. LINERBOARD

No samples submitted

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--SEPTEMBER 1 THROUGH SEPTEMBER 30, 1958 (continued)

TABLE XLII

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
179816	W.F.	8/27/58	-	45.1	44.9	-0.2	13.1	12.8	-0.3	112	112	0	347[a]	316	-31	380[a]	379	- 1
179817	W.F.	8/28/58	-	45.5	44.9	-0.6	12.2	12.0	-0.2	120	118	- 2	335[a]	308	-27	363[a]	359	- 4
179818	W.F.	8/29/58	-	43.6	43.6	0.0	12.9	12.7	-0.2	108	109	+ 1	339[a]	323	-16	388[a]	381	- 7
179857	W.F.	9/ 8/58	-	47.5	46.8	-0.7	12.9	12.6	-0.3	117	125	+ 8	354	377	+23	402[a]	401	- 1
179858	W.F.	9/ 9/58	-	42.7	41.8	-0.9	12.0	12.0	0.0	113	115	+ 2	316	305	-11	351[a]	333	-18
179859	W.F.	9/10/58	-	45.9	45.1	-0.8	12.7	12.5	-0.2	116	115	- 1	336[a]	331	- 5	387[a]	381	- 6
Current Mill Average:				45.0	44.5	-0.5	12.6	12.4	-0.2	114	116	+ 2	338	327	-11	379	372	- 7

TABLE XLIII

MILL T -- 42-LB. LINERBOARD

179820	W.F.	8/29/58	2	42.8	42.9	+0.1	11.8	12.1	+0.3	115	117	+ 2	283	324	+41	333[a]	379	+46
179861	W.F.	9/ 6/58	2	43.7	43.3	-0.4	12.4	12.2	-0.2	116	118	+ 2	316[a]	320	+ 4	375[a]	379	+ 4
179862	W.F.	9/ 6/58	2	43.5	43.3	-0.2	12.4	12.2	-0.2	117	118	+ 1	337	317	-20	372[a]	382	+10
179863	W.F.	9/ 7/58	2	44.1	43.6	-0.5	12.9	12.6	-0.3	112	115	+ 3	313	314	+ 1	365[a]	377	+12
179864	W.F.	9/ 7/58	2	44.0	43.6	-0.4	13.0	12.6	-0.4	113	114	+ 1	310[a]	317	+ 7	364[a]	386	+22
179927	W.F.	9/14/58	2	42.8	42.5	-0.3	12.2	12.0	-0.2	114	114	0	305	318	+13	361[a]	383	+22
179928	W.F.	9/14/58	2	43.4	42.7	-0.7	12.1	12.0	-0.1	113	114	+ 1	305	316	+11	344[a]	373	+29
Current Mill Average:				43.5	43.1	-0.4	12.4	12.2	-0.2	114	116	+ 2	310	318	+ 8	359	380	+21

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.